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			NADKARNI, SARVESH J	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/810,078	Applicant(s) TAKEUCHI ET AL.	
	Examiner Sarvesh J. Nadkarni	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 27-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03/26/2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :10/05/2005; 3/14/2005; 01/01/2005; 12/08/2004; 3/26/2004 .

DETAILED ACTION

This Office Action is in response to the application filed March 26, 2004, Application Number: 10/810,078 (hereinafter referred to as “application”) and in accordance with the Response to Restriction filed November 7, 2007. The application was published on September 30, 2004, Publication Number: US 2004/0189548 A1. Page and line number references made in this action relate to the originally filed application, not the publication. Claims 1-43 were subject to restriction. Applicant has elected claims 1-26 with traverse as indicated in the Response to Restriction filed November 7, 2007. Therefore, claims 1-26 will be examined herein.

Information Disclosure Statement

Receipt is acknowledged of the information disclosure statements filed on October 5, 2005; March 14, 2005; January 1, 2005; December 08, 2004; and March 26, 2004.

Drawings

1. Figures 43 and 44 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required

corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 9 recites the limitation "said rectifying element" in its dependency on claim 1. There is insufficient antecedent basis for this limitation in the claim because claim 1 recites a first rectifying element and a second rectifying element and it is indeterminable which rectifying element is being referenced by claim 9. Therefore, claim 9 is rejected for as being indefinite.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 12, 13 and 22 and dependent claims 9, 10, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Verhulst (US 5,767,829) hereinafter referred to as Verhulst '829.

6. Regarding claim 1, Verhulst '829 clearly teaches a **circuit element** (see FIG. 10 further described at columns 7 lines 30-end and continued at column 8, lines 1-34) **comprising: a first lead wire** (see FIG. 10, element 4 further described at column 7, lines 30-57); **a second lead wire** (see FIG. 10, element 12, further described at column 7, lines 30-57); **a third lead wire** (see FIG. 10, element 5, further described at column 7, lines 30-57); **a first rectifying element** (see FIG. 10, element 10, described at column 7, lines 30-67 further continued at column 8, lines 1-34) **and a second rectifying element** (see FIG. 10, element 11, further described at column 7, lines 30-67 further continued at column 8, lines 1-34) **which are connected in series in a forward direction between said first lead wire and said second lead wire** (see FIG. 10 depicting series connection between wires as described at column 7, lines 30-67 and continued at column 8, lines 1-34); **and a load** (see FIG. 10 element 2, further described at column 7, lines 30-67 and continued at column 8, lines 1-34) **which is connected between said third lead wire and a connection point between said first rectifying element and said second rectifying element** (see FIG. 10 illustrating load connection point of element 2 between first and second rectifying elements).

7. Regarding claim 12, Verhulst '829 clearly teaches a **signal processing circuit** (see FIG. 10 element 8 and surrounding elements further described at column 6, lines 20-26) **comprising a circuit element** (see FIG. 10 further described at columns 7 lines 30-end and continued at column 8, lines 1-34) **and a control circuit** (see FIG. 10 element 8 further described at column 6, lines 10-35), **wherein said circuit element includes: a first lead wire** (see FIG. 10, element 4 further described at column 7, lines 30-57); **a second lead wire** (see FIG. 10, element 12, further described at column 7, lines 30-57); **a third lead wire** (see FIG. 10, element 5, further described

at column 7, lines 30-57); **a first rectifying element** (see FIG. 10, element 10, described at column 7, lines 30-67 further continued at column 8, lines 1-34) **and a second rectifying element** (see FIG. 10, element 11, further described at column 7, lines 30-67 further continued at column 8, lines 1-34) **which are connected in series in a forward direction between said first lead wire and said second lead wire** (see FIG. 10 depicting series connection between wires as described at column 7, lines 30-67 and continued at column 8, lines 1-34); **and a load** (see FIG. 10 element 2, further described at column 7, lines 30-67 and continued at column 8, lines 1-34) **which is connected between said third lead wire and a connection point between said first rectifying element and said second rectifying element** (see FIG. 10 illustrating load connection point of element 2 between first and second rectifying elements); **said control circuit controls at least an electric potential of said first lead wire and an electric potential of said second lead wire** (see FIG. 10, element 8 further described at column 6, lines 10-47).

8. Regarding claim 13, Verhulst '829 clearly teaches **a control device** (see FIG. 10 element 8 and surrounding elements further described at column 6, lines 20-26) **comprising a plurality of circuit elements** (see FIG. 10 further described at columns 7 lines 30-end and continued at column 8, lines 1-34) **and a plurality of control circuits** (see FIG. 10 elements 6, 8 and 9 further described at column 6, lines 10-35), **wherein each of said circuit elements includes: a first lead wire** (see FIG. 10, element 4 further described at column 7, lines 30-57); **a second lead wire** (see FIG. 10, element 12, further described at column 7, lines 30-57); **a third lead wire** (see FIG. 10, element 5, further described at column 7, lines 30-57); **a first rectifying element** (see FIG. 10, element 10, described at column 7, lines 30-67 further continued at column 8, lines 1-34) **and a second rectifying element** (see FIG. 10, element 11, further

described at column 7, lines 30-67 further continued at column 8, lines 1-34) **which are connected in series in a forward direction between said first lead wire and said second lead wire** (see FIG. 10 depicting series connection between wires as described at column 7, lines 30-67 and continued at column 8, lines 1-34); **and a load** (see FIG. 10 element 2, further described at column 7, lines 30-67 and continued at column 8, lines 1-34) **which is connected between said third lead wire and a connection point between said first rectifying element and said second rectifying element** (see FIG. 10 illustrating load connection point of element 2 between first and second rectifying elements); **each of said control circuits controls electric potentials of said first lead wire, said second lead wire, and said third lead wire** (see FIG. 10, elements 6, 8 and 9 further described at column 6, lines 10-47).

9. Regarding claim 22, Verhulst '829 clearly teaches **a display device** (see FIG. 10 generally further described at least at column 2, lines 58-60) **comprising: a display section** (see at least FIG. 10 generally and described in 58-end) **which includes a large number of picture elements** (see column 2, lines 58-end describing a matrix of pixels further illustrated in FIG. 10); **a large number of select lines** (see column 2, lines 57-end describing row/selection electrodes) **each of which gives a selection/unselection instruction to said respective picture elements** (see column 2, lines 57-end and additionally see column 3, lines 1-15 describing selection process of row of pixels); **a large number of signal lines** (see column 2, lines 58-end and continued at column 3, lines 1-15 describing column or data electrodes) **each of which supplies a picture element signal to said respective picture elements in a selected state** (see column 2, lines 58-end and continued at column 3, lines 1-15 describing column or data electrodes); **and a large number of reset lines** (see FIG. 10, elements 12, further described at column 7, lines 35-

57) **each of which supplies a reset signal to said respective picture elements in said selected state** (see FIG. 10, elements 12, further described at column 7, lines 35-57 describing reset Vres, furthermore see FIG. 11A), **wherein each of said picture elements includes: a first rectifying element** (see FIG. 10, element 10, described at column 7, lines 30-67 further continued at column 8, lines 1-34) **and a second rectifying element** (see FIG. 10, element 11, further described at column 7, lines 30-67 further continued at column 8, lines 1-34) **which are connected in series in a forward direction** (diodes as depicted are in a forward direction) **between two lines selected from one of said select lines, one of said signal lines, and one of said reset lines** (see FIG. 10 depicting series connection between wires as described at column 7, lines 30-67 and continued at column 8, lines 1-34); **and a load** (see FIG. 10 element 2, further described at column 7, lines 30-67 and continued at column 8, lines 1-34) **which is connected between remaining one line and a connection point between said first rectifying element and second rectifying element** (see FIG. 10, element 11, further described at column 7, lines 30-67 further continued at column 8, lines 1-34).

10. Regarding claim 2, Verhulst '829 clearly teaches **the circuit element according to claim 1** (see above), **wherein V1 [greater than or equal to] V2 over an entire operating period** (see FIG. 11 describing frame A) **provided that V1 represents an electric potential of said first lead wire and V2 represents an electric potential of said second lead wire** (see generally FIGs. 10 and 11a-11e where V1 is voltage at line 4 and V2 is common reference voltage at line 12).

11. Regarding claim 7, Verhulst '829 clearly teaches **the circuit element according to claim 2** (see above), **wherein in said operating period, a third period is set in which a current does**

not flow in said load (see column 7, lines 30-end and continued at column 8, describing a reset period).

12. Regarding claim 9, Verhulst '829 clearly teaches **the circuit element according to claim 1** (see above), **wherein said rectifying element is a diode** (see column 7, lines 35-37 describing diodes 10 and 11).

13. Regarding claim 10, Verhulst '829 clearly teaches **the circuit element according to claim 9** (see above), **wherein said diode is a thin film diode** (see column 8, lines 14-34 describing alternative embodiments using TFTs).

14. Regarding claim 11, Verhulst '829 clearly teaches **the circuit element according to claim 10** (see above), **wherein said thin film diode is an MIM element** (see column 8, lines 14-34 describing alternative embodiments using MIMs).

15. Regarding claim 14, claim 2 encompasses all the limitations of claim 14. Claim 14 is therefore similarly analyzed and rejected under the same rationale as claim 2 above.

16. Regarding claim 23, Verhulst '829 clearly teaches **the display device according to claim 22** (see above), **wherein V1 [greater than or equal to] V2 over an entire operating period** (see Verhulst '829 at least at FIG. 11 describing frame A) **provided that: a line selected from the one of said select lines, the one of said signal lines, and the one of said reset lines, to which a cathode of said first rectifying element is connected** (see at least Verhulst '829 FIG. 10 further described at column 7, lines 30 to end), **is defined as a first line** (see FIG. 10 element 4, further described at column 7 lines 30 to end), **and a line selected from the one of said select lines, the one of said signal lines, and the one of said reset lines, to which an anode of said second rectifying element is connected** (see FIG. 10 element 12 further describe

at column 7, lines 30 to end), **is defined as a second line** (see column 7, lines 30 to end); **and V1 represents an electric potential of said first line** (see FIG. 10, 11a-11e further described at column 7 lines 30 to end and column 8, lines 1-34 describing Vrow), **and V2 represents an electric potential of said second line** (see FIG. 10, 11a-11e further described at column 7 lines 30 to end and column 8, lines 1-34 describing Vcom).

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verhulst '829.

19. Regarding claim 3, Verhulst '829 clearly teaches **the circuit element according to claim 2** (see above). However Verhulst '829 does not explicitly teach **in said operating period, a first period is set in which a current flows from said third lead wire to said load**. It would be obvious to one having ordinary skill in the art at the time of invention in view of the disclosure of Verhulst '829 that the current would flow from the third lead wire to said load in order for the appropriate functioning of the device and the commonly understood benefit of an operable display.

20. Regarding claim 5, Verhulst '829 clearly teaches **the circuit element according to claim 2** (see above). Verhulst '829 does not explicitly teach **in said operating period, a second period**

is set in which a current flows from said second lead wire to said load. It would be obvious to one having ordinary skill in the art at the time of invention to include a second period where the pixel is addressed in order for the device to function appropriately as a display device.

21. Claims 4, 6, 8, 15, 16, 17, 24, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verhulst '829 as applied to claims 2 and 3 above, and further in view of Kuijk (US 5,032,831) hereinafter referred to as "Kuijk '831".

22. Regarding claim 4, Verhulst '829 clearly teaches **the circuit element according to claim 3** (see above), However, Verhulst '829 does not explicitly teach **V1<V3 in said first period provided that V3 represents an electric potential of said connection point.**

23. Kuijk '831 clearly teaches **V1<V3 in said first period provided that V3 represents an electric potential of said connection point** (see at least at column 5, lines 37-end and continued at column 6, further illustrated in FIGs. 5a-5c).

24. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have been motivated to incorporate the drive potentials as taught by Kuijk '831 into the device of Verhulst '829 because both are within the same field of endeavor, and furthermore, because the drive arrangement as taught by Kuijk '831 clearly improves picture quality and creates a steadier picture (see Kuijk '831 column 2, lines 25-28).

25. Regarding claim 6, Verhulst '829 in view of Kuijk '831 clearly teaches **the circuit element according to claim 5, wherein V2>V3 in said second period provided that V3 represents an electric potential of said connection point** (see Kuijk '831 at least column 5, lines 37 to end describing voltage Va at junction point 13).

26. Regarding claim 8, Verhulst '829 in view of Kuijk '831 clearly teaches the **circuit element according to claim 7, wherein V_2 [less than or equal to] V_3 [less than or equal to] V_1 in said third period provided that V_3 represents an electric potential of said connection point** (see Kuijk '831 at least at column 5, lines 37 to end and continued at column 6, lines 1-53 describing relationship of V_a , V_d and V_{ref}).

27. Regarding claim 15, Verhulst '829 in view of Kuijk '831 clearly teaches **the control device according to claim 14** (see above), **wherein a selection period and an unselection period are set for each of said circuit elements in said operating period** (see Kuijk '831 at column 4, lines 28 to end and further illustrated in FIGs. 5a-5c); **and V_2 [less than or equal to] V_3 [less than or equal to] V_1 in said unselection period provided that V_3 represents an electric potential of said connection point** (see Kuijk '831 at least at column 5, lines 37 to end and continued at column 6, lines 1-53 describing relationship of V_a , V_d and V_{ref}).

28. Regarding claim 16, Verhulst '829 in view of Kuijk '831 clearly teaches **the control device according to claim 15** (see above), **wherein $V_1 < V_3$ or $V_2 > V_3$ while each of said circuit elements is actually selected in said selection period** (see Kuijk '831 at least at column 5 lines 13-56 describing relation of $V_{[sub]A}$, V_d and V_{ref} further illustrated in FIGs. 5a-5c).

29. Regarding claim 17, Verhulst '829 in view of Kuijk '831 clearly teaches **the control device according to claim 16** (see above), **wherein a reset period is set for each of said circuit elements in said operating period** (see Verhulst at but not limited to column 7, lines 30 to end, and illustrated in FIGs. 10 and 11a-11e); **and $V_1 < V_3$ or $V_2 > V_3$ while each of said circuit elements is actually reset in said reset period** (see Kuijk '831 at but not limited to column 5, lines 13-end and continued at column 6, lines 1-37).

30. Regarding claim 24, claim 15 is composed of the same limitations as that in claim 24.

Claim 24 is therefore similarly analyzed and rejected under the same rationale as claim 15 above.

31. Regarding claim 25, claim 16 is composed of the same limitations as that in claim 25.

Claim 25 is therefore similarly analyzed and rejected under the same rationale as claim 16 above.

32. Regarding claim 26, claim 17 is composed of the same limitations as that in claim 26.

Claim 25 is therefore similarly analyzed and rejected under the same rationale as claim 17 above.

33. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Verhulst '829 as applied to claim 13 above, and further in view of Takeuchi et al., (US 6281,868) hereinafter referred to as "Takeuchi '868".

34. Regarding claim 18, Verhulst '829 clearly teaches **the control device according to claim 13** (see above) Verhulst '829 does not explicitly teach **said load is a displacement control element which displaces a control objective based on a voltage applied to said load.**

35. In the same field of endeavor, Takeuchi '868 clearly teaches **said load is a displacement control element which displaces a control objective based on a voltage applied to said load** (see Takeuchi '868 at but not limited to FIG. 13, element 90 further described at least at column 21 lines 26 to end).

36. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have been motivated to incorporate the device as taught by Takeuchi '868 into the display device of Verhulst '829 because both are within the same field of endeavor, and furthermore, because the display period would be improved with such an adaptation (see Takeuchi '868 column 7 at lines 19-33).

37. Regarding claim 19, Verhulst '829 in view of Takeuchi '868 clearly teaches **the control device according to claim 18, wherein said displacement control element includes a piezoelectric element** (see (see Takeuchi '868 describing piezoelectric element at but not limited to Abstract and additionally at columns 15 lines 44 to end and continued at column 16).

38. Regarding claim 20, Verhulst '829 in view of Takeuchi '868 clearly teaches **the control device according to claim 18** (see above), Verhulst '829 in view of Takeuchi '868 does not explicitly teach **said displacement control element includes an inductor, and a displacement of said control objective is controlled by magnetization of said inductor which is controlled by a current flowing through said inductor depending on a voltage.**

39. It would have been obvious matter of design choice to one having ordinary skill in the art at the time of invention to combine the force sensitive design into the apparatus of Verhulst '829 in view of Takeuchi '868 because such an inductor dependent system is well known in the art and is commonly used or taught as a substitute for force-sensitive devices, and its use over other force-sensitive devices becomes merely a matter of design.

40. Regarding claim 21, Verhulst '829 in view of Takeuchi '868 clearly teaches **the control device according to claim 18** (see above). Verhulst '829 in view of Takeuchi '868 does not explicitly teach **wherein said displacement control element includes at least a pair of opposing electrodes to utilize an electrostatic force exerted when a voltage is applied between at least said pair of electrodes.** It would have been an obvious matter of design choice to one having ordinary skill in the art at the time the invention was made to use opposing electrodes in a touch sensitive display apparatus as taught by Verhulst '829 in view of Takeuchi '868 because such an opposing electrode system is well known in the art and is commonly used

or taught as a substitute for force-sensitive devices, and its use over other force-sensitive systems becomes merely a matter of design choice.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarvesh J. Nadkarni whose telephone number is 571-270-1541. The examiner can normally be reached on 11AM-7PM EST Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on 571-272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sarvesh J. Nadkarni
Examiner – Art Unit 2629


AMARE MENGISTU
SUPERVISORY PATENT EXAMINER